Social Indicators for the Strategic Evaluation of Major Social Programs

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Executive Summary

The purpose of this paper is to review the potential utility of social indicators or social auditing for the ongoing monitoring and strategic evaluations of major HRDC social-spending programs, like the Canada Health and Social Transfer (CHST). The social-indicator or social-auditing approaches would represent important lines of evidence to develop to monitor and evaluate the performance of other major social programs, like the Child Tax Benefit. They would provide important evaluative evidence on how well these major programs are doing over time.

The views expressed in this paper are those of the author and do not necessarily reflect those of Human Resources Development Canada.

1. Introduction

The purpose of this paper is to review the potential utility of the social-indicator or social-audit approaches[1] for the ongoing monitoring and strategic evaluation of major social programs, like the Canada Health and Social Transfer (CHST)[2]. Such approaches might also be adaptable to the evaluation and monitoring of other social programs (the Child Tax Benefit[3], Old Age Security, Guaranteed Income Supplement, Seniors' Benefit Program, Canada Pension Plan). This task is particularly challenging in the case of the CHST, since federal funding is transferred to the provinces, which in turn determine its allocation for various activities in provision of welfare and post-secondary education. For this reason, a particular focus of this paper is the potential applicability of these approaches to CHST monitoring and evaluation.

It is federal government policy to periodically evaluate the continued relevance, success and cost-effectiveness (program performance) of the federal programs and use that information to reconfirm, improve or discontinue programs[4]. The objective of the policy is to ensure that federal departments and agencies have relevant, credible and objective information available on the performance of their programs, and that they use that information for the cost-effective and accountable management of programs.

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1 Social indicators and social audit are assumed to be the same and therefore in the remainder of this paper the term *social indicators* is primarily employed.

2 CHST, which had its origins in the Federal Budget of February 27, 1995, came into effect in 1996-97 to replace previous major transfers to the provinces and territories under the Canada Assistance Program (CAP) and the Established Programs Financing (EPF) for health and post-secondary education. As with CAP and EPF, the new 'block funding' transfer is a combination of cash and tax points. The CHST components for which HRDC has administrative responsibility are the EPF post-secondary education and social assistance/ welfare support components (replacement for CAP), not the EPF health component of CHST, which is administered by Health Canada. The CHST accounted for $25.1 billion in tax points ($12.5 billion) and cash transfers ($12.6 billion) to the provinces in 1996-97. While HRDC has a policy interest in the CHST matters, Finance Canada has legislative responsibility for the CHST.

3 In 1993, the federal government replaced the family allowances and child tax credits with the Child Tax Benefit (CTB), a tax-free, income-tested, monthly payment for families with children, $1,020 per child and another $75 for additional children. It also included a $500 Working Income Supplement for low-income working families' first child to be raised to $750 in July 1997 and $1,000 in July 1998. The February 1997 Federal Budget converted this program into the enriched National Child Benefit System, which combines the Child Tax Benefit and the Working Income Supplement; the Working Income Supplement will rise from $500 per family to $605 for the first child, to $405 for the second one, and $330 for each additional child, starting July 1997; the CTB will provide a maximum $1,625 for the first child and $1,425 for each additional child, beginning July 1998. While HRDC has a policy interest in child poverty, Finance Canada has legislative responsibility for the CTB.

4 See Treasury Board Policy (1977-47) on "The Evaluation of Programs by Departments and Agencies"; this was reconfirmed in the 1992 *Treasury Board Manual, Evaluation and Audit* and the *TBS Review Policy* (May 26, 1994).

In the past, these have mainly been retrospective 'point in time' evaluations, but there is now a new emphasis as well on 'real time' evaluations in which ongoing performance monitoring will play a key role.

A primary concern is to ensure that HRDC is in a position to effectively monitor and eventually evaluate these programs, but not duplicate other work. A secondary concern is that HRDC contributes to the improvement of performance reporting for its major social programs.

This paper is composed of three sections in addition to this introduction. Part 2 is a discussion of the term *social indicator* and reviews past work in this field under a broad classification scheme for such indicators. Work just completed or currently under way in Canada is also reviewed, as well as that in the United States, which may have a bearing on future domestic work. Part 3 sets out some options for Evaluation and Data Development, HRDC, to pursue in the area of social indicators and social audit, with a particular focus on the CHST. Part 4 summarises the recommendations of this report.

Block funding programs with little input conditionality, like CHST[5], present a challenge for federal accountability requirements. The latter must balance the objectives of enhancing provincial flexibility, while maintaining a degree of federal control consistent with the fact that federal dollars and broad national objectives are involved. An approach to balancing these competing provincial and federal objectives is to promote evaluation-type accountability for the results or outcomes of provincially administered programs financed in part with federal funds. This would suggest that the federal role may be to monitor block funding programs like CHST by collecting information on the related provincial-program efforts and accomplishments (outcomes), as well as evaluating and disseminating information on 'best practices' to achieve these outcomes. This review of the potential use of social indicators for the monitoring and strategic evaluation of major HRDC social programs (like CHST) proceeds on the basis of this assumption.

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[5] The Ministerial Council on Social Policy, Reform and Renewal's *Principles to Guide Social Policy Reform and Renewal, Report of the Premiers* (August 1995) sets out the *values, principles and objectives* (VPOs) which guide 'Social Union' type programs like CHST, e.g., programs must be flexible, responsive and reasonably comparable across regions. These values, principles and objectives may be further specified in the future.

2. Overview of the Social-Indicator Development Field

This section provides a definition of social indicators, a classification of social-indicator approaches, and a review of the recent activities in this field in Canada.

2.1 Social Indicators, What Are They?

The development of social indicators emerged with the revival of interest in the measurement of social change and social policy in international organisations in the fifties and in the United States in the sixties.

The development of social indicators[6] is of recent origin. It emerged with the revival of interest in the measurement of social change and social policy in international organisations in the fifties and in the United States in the sixties. In the United States, interest in social indicators and related concepts, such as social reporting, arose from the need to consider social change as a totality and the awareness that nothing existed on the social side to correspond to the well-developed System of National Accounts for economic reporting. Interest in social indicators soon also arose in Western Europe, with the establishment of regular social-reporting systems for data collection during the sixties. Subsequently, there was a decrease in activity in this field in the late seventies and early eighties, with a later revival of interest in the later part of the eighties. The great hopes of the sixties and seventies were not fulfilled for a number of reasons, in particular the absence of a comprehensive social model and an agreed-upon taxonomy of social terminology, leading people to define social indicators in different ways.

There is no universally accepted meaning of social indicators to distinguish them from the economic or other kinds of indicators, and there are many competing definitions[7]. The tendency of some has been to define social as a residual category, or everything that is not economic. This residual category has come to include health, education, housing, and employment, although they all have very important economic dimensions. For many, economic status is an essential component in any broad measure of whether people's "quality of life" is improving. This view is that social statistics are necessarily complementary to purely economic measures of well-being, but also include the economic dimension.

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[6] The term *indicator* is normally used to select key variables from a large number of variables (statistics), which are then called indicators. But deciding what are the key variables requires a conceptual framework, which is at least a two -step process: defining the fields or conceptual items which are to be measured and selecting indicators relevant to the field being examined.

[7] See Robert V. Horn, *Statistical Indicators for the Economic and Social Sciences*, Chapter 5, 1993.

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What is stressed in level-of-living research is the importance of the resources at the disposal of individuals, not how they use them or subjectively feel about them.

The definitions may be broad, such as the quality of life of the people of Canada or its different regions. Or they may be narrow, such as the educational attainment levels of the different regions of Canada or of subgroups within the population. There may be conventional indicators, such as health and education, or indicators to denote areas afflicted by health conditions, because of, say, relative poverty. Since the latter fields cannot be measured directly, they are examined indirectly through selected indicators (e.g., mortality rates, access to medical care, etc.).

Social indicators are normally directed toward a wider and more integrated area of social concern than traditional statistical data collection. Over time there has been a shift in conceptualisation toward a system of broader concerns. The following section distinguishes some of the main approaches to social reporting with social indicators.

2.2 A Proposed Classification of Social Indicators

Social reporting with social indicators can be broadly classified in various ways. A broader classification is adopted for the purposes of this paper. In this case the development of social indicators could comprise any of the following:

- level-of-living research
- quality-of-life measures
- social statistics/living conditions
- social-indicator systems
- social accounting matrices (SAMs)
- satellite systems
- composite indicators

2.2.1 Level-of-Living Research

What is stressed in *level-of-living research* is the importance of the resources at the disposal of individuals, not how they use them or subjectively feel about them[8]. Of importance is that individuals have a sufficient, equal or fair share of national wealth (income creation). The concern is what they do with it. The satisfaction derived from an income position is not important because there is no attempt to influence the satisfaction or happiness (personal state) of the individual. If the defined income level is attained, the judgment is that this person or group of persons is obtaining a fair share of the national wealth. The practical utility of a level-of-living index is downplayed, and the same is true

[8] See Rothenbacher, Franz, "National and International Approaches in Social Reporting", *Social Indicators Research*, Volume 29, 1993.

for subjective indicators of well-being. *Level-of-living* research has been primarily the domain of the Scandinavian countries, in particular Sweden.

In Canada there are studies to examine adequacy of income or income inequality over time. Applying such measures as Statistics Canada's 1992 official Low Income Cut-Offs (LICOs)[9], it is possible to make statements regarding whether certain groups attain incomes above or below these thresholds. But these conclusions do not imply the same moral judgments as those related to the attainment of 'level-of-living' standards in, say, Sweden. Indeed, Statistics Canada avoids altogether any mention of 'poverty' in this context. In Canada there are also many other benchmarks used to measure absolute and relative poverty, and there is considerable debate as to its definition in practical terms[10]. Past program evaluations have used poverty measures as benchmarks to determine the relative importance of program benefits to the standard of living of low-income beneficiaries (recent evaluations of the Canada Pension Plan and Old Age Security programs).

This research strategy is to evaluate the relevance, at least from the standpoint of the survey respondents, of objective research findings.

2.2.2 Quality-of-Life Measures

The main vehicles for *quality-of-life* assessments are surveys combining both objective and subjective elements. The principal difference from the level-of-living method is the inclusion of both objective and subjective indicators in survey questionnaires. However, there is a difference not only in the indicators, but also in the theory that underlies objective and subjective questions or queries of personal perceptions. Objective social indicators monitor social evidence independently of personal viewpoints. On the other hand, subjective indicators are personal judgements based on experience of social situations.

The objectively verified resource approach is supplemented by a perceived-needs approach, including an assessment of personal satisfaction, such as aspirations and events of happiness or disappointment[11]. This research strategy is to evaluate the relevance, at least from the standpoint of the survey respondents, of objective research findings.

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9 The LICOs differ by family size and community size or by LICO areas, of which there are five (four urban and one rural). These are statistically estimated from a sampling of income and expenditure patterns of the whole population. In Canada some 35 separate LICOs are calculated.

10 Some other measures are those of the Statistics Canada Low Income Measure, LIM (one half the median family income, with no regional variations), the Toronto Social Planning Council measure, the Canadian Council of Social Development measure, the Croll measure (one based on the methodology of the 1972 Croll Senate committee poverty report), the Montreal Diet (a minimum adequate standard of living), and the Gallup measure, the minimum weekly amount of income for a family of four (two adults and two children), based on a public opinion poll.

11 This approach is discussed by Heinz-Herbert, Noll and Wofgang Zapf, "Social Indicator Research Societal Monitoring and Social Reporting" in *Trends and Perspectives in Comparative Social Research*, 1994.

But this methodology poses particular problems if the results of such information gathering is used in the political process to optimise the future subjective quality of life. This is because the assumption underlying personal opinion is a normative judgment and subject to change, especially with respect to the weight attached to the components of quality of life. The ultimate objective of human life is also a philosophical question that varies between and within generations.

Program evaluations often draw comparisons between perceptions of personal well-being and objective evidence regarding what, for example, program benefits are contributing to the standard of living of beneficiaries.

2.2.3 Social Statistics/Living Conditions

This approach represents the development of available census and sample survey statistics in the form of comprehensive social statistical reports. This type of work involves a component approach to social statistics. These results might appear yearly or every two, three or five years, etc., and contain objective data. A sub-set of living-conditions data gathering is social reporting, which can be sub-divided into sectoral reports (housing stock, health, education, demographic characteristics of society). Some are functional reports which cross-cut different sectors or components of society (education, health, demographic characteristics of society by income level).

The collection of social statistics (sets of single indicators) in Canada has been a learning process, and initial concepts have become more gradually specified. In Canada there are a number of social time series collected by Statistics Canada since the mid-seventies, which include the following:

Time Series	Social Indicators
Population growth, distribution, family formation, composition	Length of life (also a health indicator)
Health	Healthfulness of life (causes of illnesses, death)
Education	Educational achievement
Work	Employment, its quality
Housing	Quality of housing
Income, consumption	Purchasing power (command over goods and services, levels of income and wealth)
Criminal justice	Personal safety
Social environment	Cultural diversity, Aboriginal poverty

Examples of key data sets, among others collected by Statistics Canada, are the General Social Survey (GSS), Family Expenditure Survey (FAMEX), Canadian Social Trends (CST), Survey of Consumer Finances (SCF), National Population and Health Survey (NPHS), and the Labour Force Survey (LFS).

Considerable use is made of these kinds of social statistics in evaluation for the purpose of comparative analysis among subgroups for program assistance or for the micro-simulation analysis of the extent of program success. However, such 'stand alone' data sets are not appropriate instruments to monitor progress toward objective achievement of program interventions. Nevertheless, it might be argued by some that Canada has gone a long way in the direction of developing broader social-indicator systems of this kind. For example, the periodic Statistics Canada bulletin, *Social Trends,* contains a list of selected time-series indicators.

2.2.4 Social-Indicator Systems

These comprise the development of comprehensive internationally comparable tables, as recommended by the United Nations in the seventies. These would entail the development of broad sets of indicators, compared with selected social statistics of the kind just discussed in the previous section (Social Statistics/Living Conditions). They would explore additional fields, such as the physical environment — exposure to air pollution and noise, time and leisure, and more aspects of personal safety — perceived threats/exposure to personal injury. Only a few countries acted upon this recommendation, West Germany, Japan, Finland, and Switzerland[12].

While these systems of social indicators try to go beyond material conditions of life and into aspects of personal satisfaction and perceived quality of life, there is usually a lack of existing data for this purpose.

2.2.5 Social Accounting Matrices

The development of social accounting matrices (SAMs) arose from a concern that the practice of national accounting, in particular its exclusive emphasis on measuring economic growth, was incomplete. The construction of a SAM provides a comprehensive description of an economy, with the emphasis on distributive aspects. Ideally a SAM provides a framework that includes all economic transactions among actors, including nonmonetary ones. Incomes and expenditures, nonmonetary activities, for the categories of households,

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[12] See Rothenbacher, *Social Indicators Research,* p.43. Switzerland, in 1981, constructed a comprehensive system of about 130 indicators for 12 components (health, education, employment, working conditions, leisure time, income and social security, housing, traffic, physical environment, family and social environment, energy, and citizen and state).

Although a SAM should stay as close as possible to the specific (institutional) reality of the economy it describes, there are various options.

Satellite systems are intended to correct the national accounts for societal production not already included.

and their relation to the production structure, the balance of payments, and transactions by other institutions are shown[13].

Apart from minimum requirements, there are no standardised concepts or guidelines for SAM construction[14]. Although a SAM should stay as close as possible to the specific (institutional) reality of the economy it describes, there are various options, depending on the available data and the social dimensions of greater concern. SAMs are very complex and costly approaches for developing social indicators, and their infrequent use has been largely confined to less complex developing economies. Nevertheless, more modest SAM adaptations, like input-output modelling with social dimensions, can serve the evaluation function. These attempt to develop a rationale or theory for some outcomes in relation to inputs, including program policies.

2.2.6 Satellite Systems

These can be defined as supplements to the national accounts and are intended to correct the national accounts for societal production not already included (household production) or not welfare oriented (the cost of protecting the environment), which are then added to the gross domestic product. They were first developed in France for education, health, social protection and the protection of the environment[15]. They usually include financial information, information on physical units. They have an accounting perspective and might not have a 'cause and effect' rationale for the program being monitored or evaluated.

2.2.7 Composite Indicators

These are attempts to develop overall measures of social well-being from partial social indicators as means of tracking social progress over time.

Some recent examples of this kind of social-indicator work in Canada are applications of (a) the *U.S. Fordham Indicator of Social Health;* (b) the *U.S. Genuine Progress Indicator;* and (c) the *Index of Social Health of the United Nations*. Prototypes for each of these have been recently constructed in Canada, and are discussed in the next section. Another methodology, Life Paths analysis, which is also discussed in the next section, is again a type of composite indicator construction.

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13 For a comprehensive outline of the challenge and complexity of developing social accounting matrices, see Keuning, Stephen J. and William A. De Reuijter, "Guidelines to the Construction of a Social Accounting Matrix", *Review of Income and Wealth*, March 1988.

14 See Appendix A for a brief explanation of the construction of a social accounting matrix. This is based on the previously cited article by Keuning and De Reuijter.

15 Loc. cit., Rothenbacher.

These categories of social indicators have serious limitations. There is usually no agreement as to what variables should be included in the composites and the weights to be attached to each component (health, education, type of employment, etc.). Also, from an evaluation standpoint, these output-based indices do not rest on a conceptual 'cause and effect' framework. They are not statistically related to the program input variables. Consequently, their potential utility as an evaluation or monitoring tool would be more as contextual than as evidence of attribution. They would provide results from multiple causes, including the socio-economic environment and federal/provincial program inputs. It would be the evaluator's responsibility to articulate the relative importance of the underlying forces that drive these trends within a modelling framework.

There is usually no agreement as to what variables should be included in the composites and the weights to be attached to each component (health, education, type of employment, etc.).

2.2.8 Other Types of Social Indicators

Other avenues to social-indicator modelling for the purposes of undertaking social audits might include econometric or micro-simulation analysis or household or community case studies, and surveys, of which there are many examples[16]. Some options are discussed in Part 3 of this paper.

2.3 Current Work on Social-Indicator Systems

There is work under way to develop social indicators in Canada, and there are some comparable activities in the United States. Most of these activities are in the *composite social-indicator* field.

2.3.1 Federal Government-Wide Performance-Indicator Project

The purpose of this interdepartmental project, established by the Treasury Board in late 1996, is to develop new performance indicators for measuring and reporting on government-wide performance. Applying the federal strategy for 'results-based management' at the government-wide level, the project is to identify broad government goals and objectives and link these to the key expected results of individual departments and agencies.

It will be expected to specify indicators that provide evidence on government's progress in achieving key overall objectives and report against government-wide performance in an manner that can be understood by the general public and parliamentarians (the main clients for these indicators). The intention is not to provide answers to all possible questions, but information at a rather general level, for a more informative discussion and debate about the broad priorities

[16] Normally data is obtained for the variables or indicators of interest. Then a conceptual or causal (explanatory) model is developed to determine the relative importance of different contributing causes to some outcome.

The intention is not to provide answers to all possible questions, but information at a rather general level, for a more informative discussion and debate about the broad priorities of government.

of government. It may also make federal departments/agencies more sensitive to government-wide issues. This information may be proposed as an annex to the President of Treasury Board's annual report to Parliament. It will monitor economic trends, safety, health, the environment and responsive government.

Statistics Canada is a major source of data and indicators for the government-wide performance-indicator project, led by the Treasury Board. Because of the depth of interest in the area of social indicators to supplement the economic information generated by the System of National Accounts, Statistics Canada is also looking at establishing a permanent group to incorporate social dimensions into the corresponding Input-Output framework.

2.3.2 Statistics Canada Projects

Statistics Canada developed a Canadian version of the Fordham Index of Social Health (ISH). This version (15 variables) of the U.S. index included many of the same variables.

Statistics Canada recently developed two composite indices of social welfare: the Genuine Progress Indicator (GPI) and the Fordham Index of Social Health[17]. This experimental work was carried out to respond to criticisms of the Gross Domestic Product (GDP) as a measure of the quality of life. GDP does not, among other things, measure (a) the value of nonmarket production; (b) changes in social preferences, attitudes; (c) quality of physical and mental health; or (d) quality of the environment.

Index of Social Health (ISH)

Statistics Canada completed the development of a Canadian version of the Fordham Index of Social Health (ISH) for Applied Research Branch, HRDC. This Canadian version (15 variables) of the U.S. index included many of the same variables (average weekly earnings, unemployment, income inequality, poverty among the elderly, health insurance for the elderly, highway deaths due to alcohol, homicides, housing, infant mortality, child abuse, child poverty, teen suicide, drug use, and high-school drop-outs). It also includes the number of people in receipt of provincial social assistance, instead of food-stamp distribution used in the U.S. index. Each indicator is measured in relative terms and given a numerical ranking on this basis (e.g., performance 1 to 10).

These rankings are the basis for developing an annual composite index. The scores derived for each indicator are combined in a single number to assess the relative performance of the country. For each year, the index score for each indicator is added together and expressed as a percentage.

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[17] For more information see *Measuring Well-Being: Proceedings from a Symposium on Social Indicators, Final Report*, Canadian Council on Social Development.

U.S. experience suggests that before 1973 the GDP and the ISH followed a similar trend. But after 1973, while the GDP in the United States rose, the ISH declined. The Canadian index has remained fairly stable from 1970 to 1995.

A Canadian prototype of this U.S. composite measure was also developed by Statistics Canada.

The choice of the various indicators, and their relative weight, is an important consideration. But the data employed can be problematic, since it is sometimes difficult to get reliable and consistent data sets over time. As well, data are affected by definitional changes over time. A serious limitation of the ISH is that it does not provide a financial measure which could be compared with GDP.

The Genuine Progress Indicator (GPI)

A Canadian prototype of this U.S. composite measure was also developed by Statistics Canada. This index was a reconfiguration of GDP, exclusive of government expenditures (except for roads and highways). As well, certain social costs associated with crime and family breakdown are also excluded. On the other hand, the GPI takes into consideration consumer spending, inequality of income distribution, nonmarket production (e.g., unpaid housework) leisure, quality time, income inequality, some aspects of the unemployment problem, urban nuisances, and environment/ecological damage[18].

Preliminary findings based on Canadian experience reveal that, while GDP has risen, GPI has remained fairly constant. Some challenges that this research has presented are the difficulty and arbitrariness involved in combining social and economic indicators.

The GPI, as it stands, includes serious limitations, such as:

- The dollar attachments are subjective for the nonmarket activities;
- The only category of public spending covered is highways and streets; public spending is not deemed a welfare contribution and adds nothing to GDP, which only presents problems; and
- Human-capital concerns are not addressed by the GPI, e.g., the non-economic costs of unemployment are not addressed; nor is the value of under-employment fully captured (the value of skilled workers employed below their capacities).

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[18] See appendix B for further details on the construction of the Genuine Progress Indicator, and Clifford Cobb, Ted Halstead and Jonathan Rowe, *The Genuine Progress Indicator, Summary of Data and Methodology* (Redefining Progress Series), September 1995.

Life Paths is an attempt to visualise lifetime patterns — statistical events of interest that span a lifetime.

...The Statistics Canada Health Adjusted Life Expectancy Model is a composite index of functional health.

Life Paths[19]

Life Paths is an attempt to visualise lifetime patterns — statistical events of interest that span a lifetime. It has arisen as a result of the perception that the System of National Accounts, systems of social and demographic statistics, and ad hoc statistical indicators construction have failed to develop internationally comparable social-economic accounts.

The Life Paths statistical framework provides a multifaceted view of individual lives using conventional life-table methods to indicate whether there has been general improvement in the quality of life. They are flexible and encompass a variety of social and economic aspects. Such indicators might include income, educational attainment, consumption, various aspects of health status, and time-use patterns; they would encompass types of relationships (e.g., marriage, cohabitation). They comprise synthetically integrated databases from complementary sources.

The Life Paths framework would extend the conventional life-table methods by considering work patterns in ways additional to the patterns of classifying life years as working or not working. It can add years of schooling and living alone or with others. Life Paths produces results that are much more realistic than life expectancy results produced using a conventional life-table methodology. But this approach is at odds with the evaluation perspective, which not only measures, but also tries to develop a rationale for, some outcomes in relation to inputs, including program policies.

Health-Adjusted Life Expectancy Model

The Statistics Canada Health-Adjusted Life Expectancy Model (HALE) is a composite index of functional health. It combines objective life-expectancy measures with the results of surveys querying people not only about their health experience, but also about the impact of various factors on the state of their health, and includes their own opinion about their health. It is also possible to measure activities like exercise or smoking on health through a link-up of HALE with the Statistics Canada Population Health Model. Statistics Canada is working closely with McMaster University on this project.

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[19] Wolfson, Michael, "Socio-Economic Statistics and Public Policy: A New Role for Micro Simulation", *50th Session of the International Statistics Institute*, Beijing, China, 21-29 August 1995. A later version of this paper was also presented to the IARIWD 24th General Conference, Lillehammer, Norway, August, 1996.

2.3.3 Human Development Index of the United Nations

The United Nations has developed the Human Development Index (HDI)[20] to monitor human welfare. It is a composite indicator, or arithmetic mean, of three partial indexes: (a) health (life expectancy); (b) educational attainment (knowledge and literacy); and (c) income attainment adjusted for poverty (for economic standard of living). Since the indices can be broken down by region (province), educational achievement or income, it might conceivably be used to measure the trends for different population groups/regions of Canada. Their limitations are those generally applicable to composite indicators (section 2.2.7). Their advantage is their simplicity of development for purposes of tracking socio-economic quality-of-life changes. Some experimental prototypes of the HDI have been constructed for Canada and the provinces.

The Canadian Labour Force Development Board is also developing a selected group of indicators to monitor the state of the labour force.

2.3.4 HRDC Indicators for Employment Insurance Monitoring and Assessment

The monitoring and assessment work plan of Evaluation and Data Development, HRDC, includes tracking the impacts of the new Employment Insurance (EI) legislation on individuals in 14 communities across Canada. Indicators are being developed to provide a balanced picture of the socio-economic status of each community and include economic, labour force, education and quality-of-life measures. The development of these indicators is testing an innovative methodology which may have other useful applications beyond the project known within HRDC as *Tracking the Future — A Community Perspective.* In this context, the possibility of constructing community-weighted indices of performance is also being explored.

The Canadian Labour Force Development Board (CLFDB)[21] is also developing a selected group of indicators to monitor the state of the labour force[22]: namely, the extent of structural unemployment; whether new entrants have achieved agreed-upon literacy/numeracy standards; degree of access to clear, accurate information on programs and services; degree of participation of all labour market players in training decisions; labour market information/ counselling that includes options for personal contact and interpretation; whether

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20 United Nations Development Programme (UNDP), *Human Development Report, Technical Notes (The Human Development Index, Key Components and Robustness)*, Oxford University Press, Oxford, 1991 pp.88-97.

21 CLFDB is a partnership organisation which promotes the creation of a skilled labour force in Canada. Its partners include business and labour, as well as other participants in the labour market (employment equity groups) — women, aboriginal peoples, persons with disabilities). It is funded by HRDC and acts in an advisory capacity to the Minister, HRDC.

22 See Canadian Labour Force Development Board, *Statement of Work, Developing Indicators of labour Force Development* (Unpublished), December 20, 1996.

The objective is to monitor changes in living conditions and in programs and services designed to improve these conditions and the affordability of life in larger Canadian municipalities.

the labour market reflects the diversity and proportionality of Canada; and public accountability for results.

2.3.5 Quality of Community Life Monitoring System of the Federation of Canadian Municipalities

This project, *Quality of Community Life Monitoring System of the Federation of Canadian Municipalities*, was launched in the Fall 1996 planning meeting of the Federation of Canadian Municipalities[23]. The program will involve the development and tracking of critical indicators of community well-being and the publication of annual reports and results. The objective is to monitor changes in living conditions, programs and services designed to improve these conditions, and the affordability of life in larger Canadian municipalities.

The characteristics of municipal populations which will be examined include:

- Income/affordability measures: average income, distribution of income and its adequacy;
- Employment measures: trends, distribution, quality and adequacy of employment; unemployment and its duration; and under-employment;
- Housing: adequacy, trends, and homelessness;
- Health measures: overall community, for specific groups (undernourished children);
- Safety measures: rates of certain contraventions and perceptions of safety;
- Measures of participation: in decision-making, community life (recreation and culture); and
- Community social infrastructure: measures of significance of social programs and access.

Specific indicators being considered include a Community Affordability Measure (CAM). It will be calculated for a market basket of goods and services in the community to determine requirements for minimum standards of living (i.e., basic living needs). It will also include the proportion of incomes in the community below the Statistics Canada Low Income Cut-Offs (LICO)

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[23] *Action Plan 1996-97, Quality of Community Life Monitoring System and Annual Reports, Canadian Municipal Governments and the FCM*, November 1996 (unpublished).

and average income of families receiving modest and low incomes. Other indicator measures being explored include quality of employment, community participation, quality of housing, and population at risk.

The indicators will respond to concerns about key population target groups: children, youth, young families, adults, seniors, and sole parents. The objective is to have a first annual report by August 1997. These will provide municipalities with a powerful tool with which to track trends and participate in the policy debates about federal, provincial and municipal spending priorities.

2.3.6 Provincial Experience

Seven provinces are either engaged in the development of performance indicators or planning to report on performance.

Alberta is the first province to have legislated the use of performance indicators in departmental business plans and annual reports.

Seven provinces are either engaged in the development of performance indicator or planning to report on performance. The two types of government indicator measures which currently exist are government-wide departmental indicators.

Only the province of Alberta has under way the development of both government-wide and departmental indicators. Nova Scotia is developing government-wide indicators, while New Brunswick is focusing on departmental indicators. Ontario, British Columbia, Quebec, and Prince Edward Island are planning to report on departmental indicators. Ontario, Quebec, Alberta, Nova Scotia, and New Brunswick report or intend to report, on performance through a "government report card".[24] These documents will consolidate information on performance for the entire government. However, the use of a "government-wide report card" will not likely contain government-wide indicators but a consolidation into one document of departmental indicators in all these provinces, except Alberta.

The provincial government of Alberta has the most developed program of indicators.

The Alberta Accountability Framework

The province of Alberta has undertaken the most extensive program of modernising government accountability[25]. It is the only province that reports results on both a government-wide (*Measuring Up*) and departmental basis (business plans and departmental annual reports). Alberta is the first province to have legislated the use of performance indicators in departmental business plans and annual reports (the *Accountability Act*). This legislation requires all government departments to prepare annual business plans and reports, including

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[24] See Treasury Board, *Government-Wide Performance Indicators Project: Information Binder* (unpublished), January, 1997.

[25] See *Measuring Up, Second Annual Report on the Performance of the Government of Alberta, 1995-96 Results*, June 1996.

consolidated financial information (revenue and expenditure) by department. Such business planning in Alberta has been fully integrated into the budget process (*Agenda 96*).

Alberta has three objectives for departmental business plans: public accountability, assistance with budget preparation, and improvements in program delivery. The tracking of performance indicators is an integral part of this reporting process. Alberta is also the only province that has involved the public in the selection of indicators[26].

While the development of the performance indicators is the responsibility of departments, there is also input by a Standing Policy Committee of Parliament. The policy is also to publish whatever measures are provided so that departments are required to be guided by these measures and their business plans.

Alberta has 23 performance measures classified in three ways (people indicators, prosperity indicators, preservation indicators). These are as follows:

People Indicators

- Educational attainment
- Life expectancy at birth
- Births of children
- Literacy and numeracy
- Health status
- Family income distribution

Prosperity Indicators

- Taxation load
- Per capita gross domestic product
- Job creation
- Workplace climate
- Export trade and transportation
- Cost of government
- Net debt
- Provincial credit rating
- Skill development
- Resource wealth
- Research and development spending

Preservation Indicators

- Crime rate
- Resource sustainability
- Water quality
- Serious youth crime
- Air quality
- Land quality

[26] Ontario has similar plans.

2.3.7 The Oregon Benchmarks Experience

The *Oregon Benchmarks*, a set of state performance indicators, were developed in 1987 and have been a source of inspiration for similar work in Canada. This initiative persuaded many state counties to develop parallel systems of performance indicators (to collect local data and analyse community -wide trends). They comprise outcome rather than input, measures, to enhance the public accountability of elected officials at both the state and county levels. The indicators monitor the trends in achieving broad social goals (e.g., improving literacy levels, crime reduction, reducing the incidence of children living in poverty, etc.), that are established through a consultative political process. Legislators must be able to demonstrate tangible progress toward the goals that a policy or program was created to reach. Other states have also adopted similar monitoring systems (e.g., Florida, Minnesota).

The Oregon Benchmarks indicators monitor the trends in achieving broad social goals.

Interest in the *Oregon Benchmarks* project led to the development of the *Oregon Option* in 1994, an agreement between the U.S. federal government, the state government of Oregon and local state governments. Its purpose was to link federal transfers to state and local government performance to promote healthy children, family stability and the stability of the workforce by focusing on particular instrumental variables (e.g., improved immunisation rate of two-year-old children, the merger of separate federal funding streams, waivers from federal laws). Its focus is also on measurable results. The lessons learned from the *Oregon Option* include the importance of having an existing outcomes-based framework, the challenge of moving from a hierarchical to a collaborative approach to governments and the crucial role that data plays in results-based strategies. The challenge of defining and reaching agreement on results across levels of government was one of the most challenging but important steps in the performance partnership.

A recent CCSD report,* The Progress of Canada's Children, *includes a commitment to produce a regular set of indicators with which to monitor continually the quality of life of children and youth.

2.3.8 Social-Indicator Work by Nongovernment Bodies

The Canadian Policy Research Network (CPRN) and the Canadian Council on Social Development (CCSD) are also engaged in social-indicator development or conceptualisation work for the future development of indicators. A recent CCSD report, *The Progress of Canada's Children*[27], includes a commitment to produce a regular set of indicators (family life, economic security, physical safety, community resources, civic vitality, learning, health status, youth labour market) with which to monitor continually the quality of life of children and youth, using data from the National Longitudinal Survey for Children and Youth. It is also planning to produce an overall economic security index, a series of indicators condensed into a composite annual index.

[27] See p. 60 of *The Progress of Canada's Children.*

While these social-indicator approaches offer insights into how to go about developing indicators, none of them in their present state provides a useful blueprint for demonstrating the potential benefits from major social-program spending

The CPRN, very conscious of the pressures facing Canadian families[28], is engaged in a project to measure family resiliency, which will be converted into a similar index.

2.3.9 Different Purposes for the Social-Indicator Work Now Under Way

The different users and developers of social indicators have a variety of purposes:

- Those who are looking for some expansion or improvement to the picture obtained from largely economic measures based on the System of National Accounts (measures of GDP, balance of payments, etc.); examples would be the development of a Canadian prototype of the U.S. Genuine Progress Indicator and the Fordham Index of Social Health. A primary concern is the accuracy of these tools for measuring well-being and their complementarity to existing systems of measurement.

- Those who want to develop national, provincial or municipal sets of indicators comprising both economic and social variables as a kind of overall report card (the federal government-wide performance-indicator project, the Alberta indicators) for public accountability, but only as broad guidelines for state action.

- Those who want to develop a set of community social indicators to monitor socio-economic trends as a supporting tool in negotiating funding from higher levels of government (the project of the Federation of Canadian Municipalities).

- Those who are interested in social indicators for their specific sectors or information needs (mortality or illness rates and their causes, quality of the housing stock, the level of educational attainment).

While these social-indicator approaches offer insights into how to go about developing indicators, none of them in their present state provides a useful blueprint for demonstrating the potential benefits from major social-program spending, such as the Canada Health and Social Transfer, from an evaluative or monitoring perspective. Although these efforts are very broadly evaluative, they do not meet the specific needs of program evaluation, especially the challenge of developing attribution statements of 'cause and effect' of program activities.

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[28] The Canadian Policy Research Network has developed *Society We Want* kits to define core Canadian values, and what they value in their society in terms of public support systems.

These approaches would have to be adapted to provide provincial composite indicators focusing on the social welfare, post-secondary education, and perhaps health[29] impacts of CHST and associated provincial spending. These would only provide 'second best' contextual evidence of social trends attributable, in part, to CHST and complementary provincial spending. This is because the overall effects, as depicted in these trends, would also be due to economic and social forces (individual preferences for betterment through post-secondary education, labour-force participation). Part 3 proposes how approaches to the social-indicator construction might be adapted to serve the purposes of evaluation and monitoring of major HRDC social programs.

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[29] Some health determinants (employment, income adequacy) are outside the health area and areas of concern to HRDC.

3. *Options for Evaluations and Data Development*[30]

Five approaches are proposed for monitoring[31] and evaluation of major social programs administered by HRDC: composite social indicators; a variant of social accounting, namely Input-Output frameworks with social accounting dimensions; microsimulation analysis based on agreed-upon social benchmarks (expectations) from such programs; a small sample panel survey; and case studies. Some might be employed to measure the independent effects of federal contributions — the impacts of CHST and the enriched federal Child Tax Benefit (a component of the federal-provincial National Child Benefit System). Others might be utilised for the measurement of the joint effects of complementary federal and provincial programs (of seniors' safety-net programs like Old Age Security, the Seniors' Benefit, which will come into existence in 2001, the Canada Pension Plan retirement and disability components). But most of the discussion is devoted to the measurement of the effects of CHST.

3.1 Composite and Partial Social Indicators

The Genuine Progress Indicator (GPI), the Index of Social Health (ISH) and similar measures[32] represent significant attempts to explore the feasibility of developing partial and composite indices of social improvement for Canada and the provinces. So is the Human Development Index (HDI) of the United Nations. The GPI-type measures focusing on CHST objectives might be further developed to track on a continuum the improvements in those aspects of 'quality of life' partially attributable to the joint or complementary federal-provincial expenditures of the CHST type. But these would not be CHST or joint CHST and complementary provincial program attribution effects. HDI-type indices could also be adapted as another line of contextual evidence to compare against the performance of the GPI-type measures, and it is relatively simple to construct.

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30 These proposals have been provided without the benefit of any federal or provincial papers which articulate the *values, principles and objectives* (VPOs) in the Ministerial Council on Social Policy, Reform and Renewal's *Principles to Guide Social Policy Reform and Renewal, Report of the Premiers*, August 1995. None is currently available, and such criteria might require federal-provincial agreement.

31 *Monitoring*, when used in this manner, refers to estimation of the outcomes of program interventions, rather than the program participation (input) statistics, which are collected by program responsibility centres

32 Statistics Canada is also looking at doing similar work adapting other models (e.g., Nordhaus and Tobin) to the Canadian situation.

Statistics Canada has the databases and experience with this kind of GPI work. And although the GPI was developed as a Canada-wide index, similar provincial indices could also be constructed. Their advantages lie in their ease of construction and ease of understanding.

Their limitation is that they could not provide statements of absolute or relative program impacts (attribution) for federal expenditures on particular programs, like CHST. Their contribution would be in tracking the effects of overall systems of programs and tax expenditures, as well as the economy, on society as a whole.

Monitoring the Effects of CHST

A fully articulated GPI-type index, with many dimensions, would be more suitable to the measurement of all federal and provincial tax and expenditure programs and the overall economy, rather than sectoral ones like CHST-welfare and CHST-post-secondary education (PSE) expenditures or the corresponding provincial social assistance and provincial PSE spending. A fully articulated GPI would not be appropriate for the estimation of the well-being impacts on a province-by-province basis attributable solely to single-purpose federal or provincial expenditures (welfare, post-secondary education, or health)[33]. It would nevertheless provide contextual evidence of overall socio-economic trends.

What would be particularly helpful is a partial GPI, or HDI indicators, to try to track (not estimate) the singular effects of CHST and complementary provincial spending. This option would be to focus on developing indices of variables immediately impacted by the CHST, namely of welfare, education, maybe even health aspects of CHST administered by Health Canada (as well as the effects of economic and social conditions and other government policies). This would be helpful even if it did not produce direct attribution effects.

For example a 'welfare' subindex might include such variables as trends in the number of households by type (number of adults, children, other dependants); by region (province); by some acceptable measure of poverty (e.g., Statistics Canada's Low Income Cut-Offs); by their employment experience in the last 12 months and its stability (full time, part time); and by recent dependence on Employment Insurance or provincial social assistance.

[33] It would only provide circumstantial, rather than more direct, attribution-type evidence.

A PSE subindex might include the number of dependent or independent youth in post-secondary education by age; sex; type of household and level of income; their level of indebtedness; region; type of studies being pursued; level of participation in federal student-loan program; employment history and stability of affected youth (PSE students); and their household characteristics (living on their own or with parents).

Another option would be to develop a broader type of more focused GPI measure for the purpose of tracking all CHST and provincial-related expenditures (by HRDC, Health Canada), as well as complementary provincial spending on a province-by-province basis. In the opinion of Health Canada, the key determinants of population health, namely education, employment opportunities and income support (via welfare) lie outside its policy influence.

There is likely a close association (correlation) between health status and welfare or trends in standard of living, between trends in employment and income levels and trends in health status. This would be a rationale for close collaboration between HRDC and Health Canada in the development of joint composite indicators. Another justification might be to share the costs among federal departments of such composite-indicator-development work.

HRDC should develop provincial composite indicators of the GPI or HDI variety, to track provincial socio-economic trends, including the effects of HRDC spending on CHST and of similar or complementary provincial programs.

Monitoring the Effects of Other Poverty-Alleviation Programs

These programs would include the enriched federal Child Tax Benefit, Old Age Security, the Seniors' Benefit (which will come in to existence in 2001), Canada Pension Plan, youth employment promotion, all other tax and expenditure policies to support poverty groups (working poor, elderly, children[34], Aboriginals) and complementary provincial initiatives. This proposal would be to develop composite-indicator measures based on improvements in the GPI (or similar indicators) to monitor the effects of federal and provincial expenditure and tax programs designed to improve the quality of life of households with poor children, working poor, seniors who are poor, and Aboriginals in each of the provinces. A joint approach to this work with Health Canada might also be contemplated.

HRDC should develop provincial composite indicators of the GPI or HDI variety to track provincial socio-economic trends, including the effects of HRDC spending on CHST, similar or complementary provincial programs, and those of other government policies, as contextual evidence for the evaluation and monitoring of CHST. This work should be undertaken

[34] The Canadian Council in Social Development (CCSD) has plans for developing indicators to track the welfare of children (see the CCSD, *The Progress of Canada's Children*, 1996).

perhaps jointly with Health Canada to cover the CHST health component, since some key health determinants lie outside the health area (employment and income adequacy and education, which are of policy interest to HRDC). This is recommended even though these trends would be attributable to a multiplicity of factors — the state of the economy, personal decisions to pursue post-secondary training or to seek employment, etc., other government policies, and not just federal-provincial program interventions of the CHST variety. *Partial indices which focused on trends in socio-economic variables directly linked to the characteristics of the beneficiaries affected by CHST social spending — social welfare, post-secondary education and perhaps also health — would also be useful.* Such indicator trend analysis would constitute useful contextual information for monitoring and evaluation of a program like CHST and their provincial counterparts and might eventually support correlation-type analysis between such trends and potential explanatory variables.

The lead role in the work on broad composite indicators within Strategic Policy, HRDC, resides with Applied Research Branch (ARB). It is reportedly examining the possibility of undertaking further work on GPI or ISH-type indicators with Statistics Canada.

Since Applied Research Branch (ARB) is playing the lead role within HRDC in this area, it is essential that Evaluation and Data Development collaborate with ARB in the development of these indices.

The composition of these indices would also interest provincial, territorial or municipal governments, and they should be kept informed of these activities. Also, their input in the construction of these indices should be invited.

3.2 Use of Input-Output Framework with a Social Accounting Dimension

Statistics Canada has begun developmental work in the area of adding social accounting dimensions to its national and provincial Input-Output (I-O) framework tables. Statistics Canada has already carried out a certain amount of exploratory work on how environmental accounts might be integrated into the I-O models. But it has not done anything of this nature in terms of other nonmarket effects (e.g., crime, culture). It could incorporate details surrounding provision of post-secondary education and health services (some of the latter are already reflected as transactions in the I-O commodity vectors). Welfare would pose certain problems, but good data exist to track how welfare recipients and poverty groups spend their income in the form of the Family

Expenditure Survey (FAMEX)[35] and the Survey of Consumer Finances (SCF)[36], which might be linked to provincial I-O tables. Such an instrument might also help to ascertain the effects of different combinations of CHST and associated provincial spending (welfare, PSE, health).

Monitoring the Effects of CHST

The use of Input-Output framework tables with social accounting dimensions for the nation and the provinces might be one way to derive national and provincial *attribution effects* from federal spending on the HRDC components of Canada Health and Social Transfer (CHST), namely welfare and post-secondary education (PSE). Any simulations with the improved I-O framework tables which incorporated some social dimensions, such as the environment, would be an improvement over the results currently generated with purely economic transaction-type I-O models.

As well, the impacts of the CHST components administered by HRDC and the health component administered by Health Canada could be estimated jointly for Canada and the provinces for the reasons advanced for joint development work on composite social indicators.

But the exercise of modelling the effects of CHST spending with an I-O framework that included social accounting dimensions for the CHST components administered by HRDC, namely of welfare and PSE, would pose significant challenges.

One challenge would be to develop provincial I-O tables with social accounting dimensions with base years, not earlier than 1993 (and preferably even more recent years), a task which would have to be directed and carried out by Statistics Canada. A full accounting for all nonmarket societal effects, positive and negative, is likely out of the question because of the size and complexity of the task. What may be available are I-O provincial models that incorporated environmental effects, perhaps some other nonmarket effects for which data are readily available, and more details on the sectors primarily impacted by the CHST spending.

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35 The Family Expenditure Survey, carried out by Statistics Canada Survey, derives estimates of income, expenditures and other characteristics of households in Canada. Data are collected every four years on approximately 14,000 private households in the 10 provinces (for the national survey) and 7,000 households in selected metropolitan areas for the urban survey.

36 The Survey of Consumer Finances is an annual Statistics Canada survey providing a cross-section of up-to-date information on the sources and distribution of income for families and individuals. Data is obtained from approximately 38,000 households in Canada, excluding those living in the territories or on Indian reserves, on Crown lands, and in institutions.

Evaluation and Data Development Branch of HRDC should collaborate with Statistics Canada to try to develop provincial Input-Output tables with social accounting dimensions for the purposes of obtaining the attributions effects from provincial spending by the federal government on CHST component activities administered by HRDC.

The distribution of CHST expenditure (tax points and cash) by the provinces would not be known directly and would have to be inferred in terms of the overall distribution of provincial spending in these domains. This raises a second challenge, which is to obtain sufficient information on the distribution of CHST funding, in terms of the expenditures of various provincial governments, on (a) welfare benefits and the administration of welfare benefits funded through CHST; and (b) the distribution of provincial PSE expenditures also funded through CHST, which match in a reasonable way with the I-O commodity/ services classification of the provincial I-O tables. This work would have to be done jointly by EDD and Statistics Canada.

Initially, such aggregate anticipated expenditures would likely appear in budget allocation intentions of the various responsible provincial departments (education, social services) and in subsequent retrospective expenditure statements. Any I-O impact analysis based on anticipated outcomes would have to be compared with subsequent I-O impact assessments of their real attribution effects, once the actual distribution of CHST- welfare and CHST-PSE expenditures was known.

The major categories of recipients would be welfare recipients and those working for post-secondary institutions, assuming a much smaller amount of such spending went into capital expenditures and commodity spending in terms of direct spending effects[37]. A related challenge would be to estimate the distribution of expenditures (money going back to the economy through personal expenditures) of those groups which benefit, namely, the allocation of the spending decisions associated with the benefits to welfare recipients, the salaries of welfare administrators and of those teaching at post-secondary education establishments. This would require substantial econometric analysis. The FAMEX and SCF databases, with consumption spending by different income classes by province, might be good sources of data for estimating the consumption functions for the CHST-affected income groups by province[38].

The Evaluation and Data Development Branch (EDD) of HRDC should collaborate with Statistics Canada to try to develop provincial I-O tables with social accounting dimensions for one year, for the purposes of obtaining the attribution effects from provincial spending by the federal

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37 Some amount of post-secondary education expenditure by way of repairs and replacement of capital stock (buildings and equipment) already occurs through the I-O commodity/ industry sectors. Likely an even more significant amount of health expenditures by way of capital (building and equipment) spending, or maintenance, also occurs through the I-O commodity/industry sectors.

38 Statistics Canada contacts advise that the FAMEX and SCF surveys would provide enough information to be the basis for such consumption function estimation, with or without further econometric analysis. If this is the case it might avoid the need for extensive consumption function estimation. This is a point that needs to be explored.

government on CHST component activities administered by HRDC. EDD should invite Statistics Canada to make a proposal for such I-O work. It might be a first step in developing such annual provincial I-O tables on a continuous basis. The proposed I-O tables should include environmental effects, other nonmarket effects for which data is readily available, and expanded and detailed post-secondary education[39] and welfare components. Any Statistics Canada proposal should explain (a) how the distribution of consumption-spending decisions by those households deemed to be likely recipients of CHST welfare and post-secondary education spending (from data sets available within Statistics Canada or elsewhere), or through the estimation of corresponding consumption functions, would link up to the I-O tables; and (b) how to assure a realistic match between provincial expenditures (from data sets available within Statistics Canada or elsewhere) on CHST-type activities financed by HRDC, with the I-O system of commodity/industry classifications. *This work might include the modelling of the CHST health component of Health Canada, since some key health determinants lie outside the health area (employment, income adequacy and education, which are of interest to HRDC policy-making).* This work to develop these attribution effects with provincial I-O tables for CHST spending will have to be a joint collaborative effort of EDD, HRDC and Statistics Canada.

This effort might include the modelling of the CHST health component of Health Canada, for the same reasons mentioned in support of including the health dimension in any composite social indicator work.

Monitoring the Effects of Other Poverty-Alleviation Programs

This discussion has focused on what could be provided to estimate the attribution effects of CHST. If I-O models were successfully adapted to the needs of CHST, they might also provide a similar monitoring role for other social programs. These include the federal component of the federal-provincial enriched National Child Benefit System (or both federal and provincial components), or of joint federal and provincial tax and expenditure program effects, targeting particular groups (seniors, the disabled) by age, income level, regions/provinces.

[39] Perhaps I-O analysis might assist in determining the impact of post-secondary education spending patterns on desired skill sets.

3.3 Micro-Simulation Modelling

Econometric techniques might be used to specify and estimate various plausible functional forms, with the appropriate lag effects, to derive attribution effects from program spending...

This option is micro-simulation modelling built on plausible theoretical bases and founded upon a credible benchmarking of the objectives of major government social programs, like CHST. However, it has major limitations for new programs like CHST.

Some consensus of federal and provincial governments for the set of indicators (economic, social) to monitor the outcomes (dependent variables — reduction in poverty of target groups) of the program interventions and their causes, would be useful. This is because these major interventions in the social policy area involve both levels of government. This would occur concurrently with the development of a theoretical 'cause and effect' model of the determinants, intervening variables (exogenous, endogenous), outputs, and desired outcomes. Data sources for the CHST or child initiatives might initially include current Statistics Canada surveys (Census, FAMEX, SCF, the National Longitudinal Survey of Children and Youth[40]). Another source of information for micro-simulation analysis might be information from a small-sample panel survey, or from household or community case studies, which are discussed later.

Econometric techniques might be used to specify and estimate various plausible functional forms, with the appropriate lag effects, to derive attribution effects from program spending for the target groups in various provinces, sub-regions, or communities. This is in order to determine the joint and separate effects contributing to certain observable and expected changes in the dependent variables (outputs, or proxies for same).

These would comprise empirically derived sets of structural equation coefficients, for which the determined values would be a relative importance of various potential causes. Trends in these indicators (coefficients) could be derived at the national, provincial, sub-regional or community levels.

This would be a very long-term project because of the associated data availability and theoretical specification problems/challenges (described in the limitations of this approach). But the utility of this kind of monitoring instrument would improve over time as more and better data was obtained and with better specification of econometric techniques.

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[40] The National Longitudinal Survey of Children and Youth (NLSCY) was developed by Statistics Canada and HRDC. It collects information on approximately 23,700 children (newborns up to 11 years of age). Beginning in 1994, this survey covers the children every two years until they become adults. In the first cycle of the survey both the child's primary caregiver and teacher provide information, as do the children, 10-11 years of age. The survey includes a broad range of family, household, and community characteristics, affecting child development.

Monitoring the Effects of CHST

Some potential effects of joint or separate CHST/provincial expenditures on welfare and post-secondary education might include:

- impact on income distribution of households by income level according to their demographic and labour force characteristics (age, sex, part-time, full-time work);

- changes in the percentage of poverty groups earning above 'poverty line' incomes;

- the lagged impacts of post-secondary education spending on levels of educational attainment (the increase in the percentage of college students who complete their training, by discipline); the employment effects, such as the increase in the percentage of young professionally-trained workers (at least PSE graduates) employed full or part-time; the income effects, such as the increase in the percentage of young professionally-trained workers earning above 'poverty line' household incomes;

- the immediate labour market effects, e.g., on summer employment opportunities for PSE students;

It might be more easy to develop the appropriate set of overall objectives regarding the eradication of child poverty. A broad consensus among different political viewpoints might be more easy to achieve in this instance, than for general welfare support, where broad agreement on what are appropriate accountability objectives (even soft ones) of CHST welfare support, for example, might be more difficult to achieve. This kind of work would have to take into account the lag effects between policy expenditure and its desired outcomes. There are lag effects in spending on welfare, post-secondary education or health, and there would be a need to separate out short-term, intermediate and long-term effects from any program spending.

For CHST, sources of inspiration for the design of the underlying theoretical model of 'cause and effect' might be interpretations of the broad values, principles and objectives of the Social Union which are to guide the joint federal-provincial stewardship of the CHST or the agenda of the Policy Research Committee (interdepartmental)[41].

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[41] See Ministerial Council on Social Policy, Reform and Renewal, *Principles to Guide Social Policy Reform and Renewal, Report of the Premiers*, August 1995, and the Policy Research Committee, *Growth, Human Development, Social Cohesion*, draft Interim Report, October 4, 1996.

Monitoring the Effects of Other Poverty-Alleviation Programs

Potential lagged impacts of joint or separate federal and provincial programs aimed at reducing child poverty might be the changes in the proportions of children living below 'poverty line' household incomes, or changes in number of daycare-centre spaces (assuming this was one the provincial initiatives to complement the federal enriched Child Tax Credit). This technique might also find applicability in estimating the relative importance of various factors contributing to poverty among other target groups, such as seniors, disabled persons and Aboriginals.

Such micro-simulation approaches might also include useful social dimensions implicit in some economic variables, e.g., impact on classes of desired skills sets, by income level, etc.

Limitations of Micro-simulation Analysis

This approach has very serious drawbacks as a short- or medium-term solution insofar as it constitutes a recent intervention with consequently little by way of experiential data to serve the purposes of estimation of 'cause and effect'. Also, there is no theoretical framework to determine and test the relative contribution of different causal factors, including CHST, for, say, standard of living changes among provincial welfare recipients over time [42].

The use of micro-simulation modelling approaches, built on a plausible theoretical basis and founded upon a credible benchmarking of the objectives of a major HRDC social program like CHST, is appealing but would constitute a long-term project. It is impractical in the short and medium term. There are serious data limitation problems because of the recency of the program. It lacks a well articulated theoretical framework to test the contribution of different causes, including CHST spending, similar or complementary provincial spending, accounting for any trends in socio-economic well-being (e.g., reduction in poverty).

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[42] Statistics Canada has a micro-simulation model, SPSD/M, to analyse financial flows between governments and households and to simulate changes in the tax-transfer system, federal programs, cost implications and income distribution effects. However, it is essentially a set of accounting identities based on the System of National Accounts and does not have an underlying theoretical model. This is the *Social Policy Simulation Data Base and Model: An Integrated Tool for Tax Transfer Policy Analysis* (see Bordt, Michael, Grant Cameron, Stephen Gribble, Brian Murphy, Geoff Rowe, and Michael Wolfson, 1990 (unpublished).

3.4 Small-Sample Panel Survey

A recurring small-sample survey should be undertaken of a panel of HRDC-CHST funding beneficiaries (provincial welfare recipients and PSE students), and perhaps for the CHST health component, and perhaps jointly with Health Canada and the provinces. This might supply continuous time series data on dependent variables affected by the program (extent to which the standard of living of welfare beneficiaries has improved, changes in the educational level of PSE beneficiaries). *In time, it might provide the basis for econometric analysis of causal hypotheses related to the relative importance of CHST and similar provincial spending, relative to other potential causal factors, for determining trends in socio-economic well-being. This kind of longitudinal database might also yield composite and partial social indicators of well-being for population sub-sets.*

3.5 Case Studies

Recurring household and community case studies might supply evidence of the impacts of major federal and provincial social programs like CHST. These are relatively simple approaches and would rest on a combination of objectively observed household and community level effects (e.g., increasing number of lower income people with more than low-income cut-off revenues), and their subjective impressions of well-being attributable to such social program(s). *Selected "most affected" community and household case studies should be carried out to provide contextual information regarding the impacts and effects of provincial welfare assistance and PSE spending, financed in part by CHST (and perhaps for the CHST health component, and perhaps jointly with Health Canada and the provinces).* These might also provide composite and partial social indicators of well-being for population sub-sets, but with more detail than would be provided by a small sample survey.

3.6 Macro Models

No macro (economy or province-wide) models, incorporating the CHST, exist. This type of development work is considered at this time of very low priority, because such macro effects could be derived through the proposed provincial Input-Output analysis.

3.7 Other Social Statistics

The other social statistics methods discussed earlier in Part 2, namely, social statistics/living conditions, level-of-living research and quality-of-life research, would find application as contextual information in the evaluation of major social programs. However, they would not provide statements of combined

program effects, nor program attribution effects. But the exploration of such questions as changes in relative poverty and income distribution would utilise information obtained through these other means, especially for comparative inter-temporal, inter-regional group analysis. This kind of contextual information is often used in program evaluation and monitoring.

3.8 Data Requirements

The need for data comparable across provinces is a critical issue. Only comparable provincial data can make it possible to assess progress in meeting agreed-upon national program objectives. The identification of both suitable measures and data collection strategies may require federal-provincial partnerships.

4. Conclusions

While these social-indicator approaches offer insights into how to go about developing social indicators, none of them in their present state provide a useful blueprint for demonstrating the potential benefits from major social program spending, such as the Canada Health and Social Transfer, from an evaluative or monitoring perspective. Although these efforts are very broadly evaluative, they do not meet the specific needs of program evaluation, especially the challenge of developing attribution statements of 'cause and effect' of program activities.

HRDC should develop provincial composite indicators, of the GPI or HDI variety, to track provincial socio-economic trends, including the effects of HRDC spending on CHST, similar or complementary provincial programs, and those of other government policies, as contextual evidence for the evaluation and monitoring of CHST. This work should be undertaken perhaps jointly with Health Canada to cover the CHST health component, since some key health determinants lie outside the health area (employment and income adequacy, and education, which are of policy interest to HRDC). This is recommended even though these trends would be attributable to a multiplicity of factors such as the state of the economy, personal decisions to pursue post-secondary training, to seek employment, etc., other government policies, and not just federal-provincial program interventions, of the CHST variety.

Partial indices which focused on trends in socio-economic variables directly linked to the characteristics of the beneficiaries affected by CHST social spending — social welfare, post-secondary education and perhaps also health, since some key health determinants lie outside the health area (employment, income adequacy and education, which are of policy interest to HRDC) — should also be developed. Such composite and partial indicator trend analysis would constitute useful contextual information for monitoring and evaluation of a program like CHST and their provincial counterparts, and might eventually support correlation-type analysis between such trends and potential explanatory variables.

Since Applied Research Branch (ARB) is playing the lead role within HRDC in this area, it is essential that Evaluation and Data Development Branch (EDD) collaborate with ARB in the development of these indices.

Evaluation and Data Development Branch of HRDC should collaborate with Statistics Canada to try to develop provincial Input-Output tables with social accounting dimensions for one year, for the purposes of obtaining the attribution effects from provincial spending by the federal

government on CHST component activities administered by HRDC. EDD should invite Statistics Canada to make a proposal for such I-O work. This might be a first step in developing such annual provincial I-O tables on a continuous basis.

Any Statistics Canada proposal should explain (a) how the distribution of consumption spending decisions by those households deemed to be likely recipients of CHST welfare and post-secondary education spending (from data sets available within Statistics Canada or elsewhere), or through the estimation of corresponding consumption functions, would link up to the I-O tables; and (b) how to assure a realistic match between provincial expenditures (from data sets available within Statistics Canada or elsewhere) on CHST - type activities financed by HRDC, with the I-O system of commodity/industry classifications. This work might include the modelling of the CHST health component of Health Canada, for the same reasons mentioned earlier in support of including the health dimension in any composite social indicator work.

The use of micro-simulation modelling approaches, built on a plausible theoretical basis, and founded upon a credible benchmarking of the objectives of a major HRDC social program like CHST, is appealing but would constitute a long-term project. It is impractical in the short and medium term. There are serious data limitation problems because of the recency of the program. It lacks a well articulated theoretical framework to test the contribution of different causal factors, including CHST spending, similar or complementary provincial spending, accounting for any trends in socio-economic well-being (e.g., a reduction in poverty).

A recurring small-sample survey should be undertaken of a panel of HRDC-CHST funding beneficiaries (provincial welfare recipients and PSE students), and perhaps for the CHST health component, and perhaps jointly with Health Canada and the provinces. In time, it might provide the basis for econometric analysis to determine the relative importance of CHST and similar provincial spending, relative to other potential causal factors, for determining trends in socio-economic well-being. Such longitudinal data might yield composite and partial indicators of well-being for population sub-sets.

Selected "most affected" community and household case studies should be carried out to provide contextual information regarding the impacts and effects of provincial welfare assistance and PSE spending, financed in part by CHST (and perhaps for the CHST health component, and perhaps jointly with Health Canada and the provinces). These might also provide composite and partial social indicators of well-being for population sub-sets, but with more detail than would be provided by a small-sample survey.

Efficient, cost-effective data-measurement strategies might be developed to monitor the continuous 'real time' effects of major HRDC social programs in a transparent way of major social programs administered by HRDC. *The most promising approaches for a HRDC evaluation of CHST are composite and partial indicators, input-output modelling with social accounting dimensions, a recurring small-sample survey of CHST beneficiaries to eventually permit econometric analysis of its contribution to socio-economic well-being, and household and community case studies.* Such methods might also support the monitoring and evaluation of other major social programs.

The need for data comparable across provinces is a critical issue. Only comparable provincial data can make it possible to assess progress in meeting agreed-upon national program objectives. The identification of both suitable measures and data collection strategies may require federal-provincial partnerships.

Appendix A

A Social Accounting Matrix: How Is It Constructed?

A SAM can be described as a numerical representation of the economy with emphasis on its distributive aspects. It is a conceptual and numerical linkage of various kinds of related monetary and nonmonetary phenomena occurring in the economy and expressed in different measurement units. In the manner of the System of National Accounts (and its Input-Output framework), transactions in particular years appear in a matrix form showing receipts in the rows and outlays in the columns. A SAM shows how sectoral value-added accrues to production factors and their institutional owners; how incomes corrected for net current transfers are spent; and how expenditure on commodities leads to sectoral production and value-added. The leakages from this cycle — for example, in the form of payments abroad or savings — are also shown. In turn, capital finance may then be linked to savings, thereby presenting a glimpse of the dynamics of the economy. A SAM provides a data framework which reflects an actor/transaction view of the economy and supports disaggregated economy-wide modelling.

The inspiration for this kind of work owes much to two publications by Richard Stone (1971, 1985) in which he built a system of social and demographic statistics (*SSDS* and *FSDS*, *Framework for Social and Demographic Statistics*). At present, it is mainly used in the Netherlands; here, work is under way on socio-demographic accounts, socio-economic accounts and labour accounts.

Because the choices made at an early stage largely fix the options later on, it is advisable to evaluate the implications of various construction methods and the possible problems one may encounter in developing a SAM.

SAM is meant to fit into the existing national statistical infrastructure. Therefore,

- a SAM should be built on available data and should not require costly data collection (e.g., surveys):
    - an obvious advantage of the integration of various data sets into a comprehensive framework is the detection of data gaps and inconsistencies; but the more detail in a SAM the more possibility for inconsistencies, and especially in attempts to assign monetary values to nonmarket events (the case of social costs);

- a challenge is that, quite often, national accounts, I-O tables and budget surveys are not compatible, which interferes with the evaluation of socio-economic policies;

- a SAM is sufficiently flexible to incorporate country-specific features and planning priorities, and the guidelines/conventions used in that country's System of National Accounts (SNAs);

- SAMs could be used for analysing income distribution and for sectoral manpower-effects monitoring. The combination of data in an ideal SAM might permit a better analysis of the occurrence of poverty and inequality in living conditions, both as such and as factors inhibiting economic growth. SAMs might also be used to provide base-year data needed for a general equilibrium government policy simulation model. But their use has been largely confined to less-complex, developing economies.

Some Guidelines for the Overall Design of SAMs

A SAM must contain detailed information about the incomes and outlays of institutions (household groups, companies, the government and relevant accounts for the rest of the world), and about the economy's productive structure (e.g., an Input-Output table). The rest of the design depends on the national socio-economic structure, policy needs, and the availability of data and resources.

Some of the 'options' to consider in the design of comprehensive SAM are:

- inclusion of subsidiary (nonmonetary/nonmarket) accounts[43] with non-monetary ones; it would likely include an accounting for social values, e.g., cost of crime, environmental degradation, housing situation, health condition, access to education and so on;

- inclusion of detailed factor accounts;

- distinction between production activity and commodity accounts;

- separate accounts for domestic and imported commodities;

- inclusion of want accounts — basic needs (food, shelter ,education, medical services);

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[43] A common interpretation of SAMs is that they always include such nonmarket effects. But they are much more than this.

- inclusion of flow of funds accounts;
- stocks underlying the flows; quantities and process underlying value transactions;
- Regionalisation: a specification of transactions within and between various geographical areas (the provinces) within one common boundary would amount to the construction of a series of SAMs with their regional interlinkages.

However, considerable resources are also involved in building fully articulated SAMs, and the time needed to construct a SAM expands with the number of accounts incorporated.

Appendix B

Components of the Canadian Version of the Genuine Progress Indicator

- personal consumption
- adjust for income inequality
- deduct: consumer spending on durables
- add: services of consumer durables
- add: services of highways and streets
- add: value of unpaid housework and parenting
- add: value of volunteer work
- deduct: cost of commuting to work
- deduct: cost of crime
- deduct: cost of automobile accidents
- deduct: cost of marriage breakdown
- deduct: loss of leisure
- deduct: some aspects of underemployment
- deduct: household pollution abatement
- deduct: cost of air, water and noise pollution
- deduct: non-renewable resource depletion
- deduct: loss of wetland
- deduct: loss of farmland
- deduct: loss of old growth forests

The Genuine Progress Indicator (cont'd)

- deduct: cost of long-term environmental damage
- deduct: cost of ozone depletion
- add: value of net capital lending
- add: value of net foreign lending

Appendix C

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